Safety Data Sheet
In accordance with Regulation (EC) No. 1907/2006 (REACH)

Item description: TMB/substrate solution for recomLine / recomBlot

1. Specification of substance / mixture and company

Trade name / description:
TMB/substrate solution for recomLine / recomBlot

Identified use:
Laboratory chemicals

Details of the supplier providing the safety data sheet

- **Company name:**
  Mikrogen GmbH
  Floriansbogen 2-4
  82061 Neuried, Germany

- **Informing entity / telephone no.:**
  Tel.: +49(0)89 - 54801-118
  Fax.: +49(0)89 – 54801-100
  E-mail: hendlmeier@mikrogen.de
  Responsible for this SDS: Ms Sonja Hendlmeier

- **EMERGENCY NUMBER:**
  Munich Poison Control Centre: +49(0)89 – 19240

2. Possible hazards

- **Classification in accordance with Regulation (EC) No. 1272/2008 [CLP]:**
  No classification according to 1272/2008

- **Identifying elements:**
  ![Hazard pictogram](NONE)  ![Signal word](NONE)

- **Hazard warnings:**
  The product does not require a hazard warning label under Regulation (EC) No. 1272/2008 (CLP).
  No special hazards.

_However, please note the information contained in this safety data sheet_
3. Composition/details of the components

- **Description:** Watery solution.
- **Hazardous ingredients:**

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>EC No.</th>
<th>% [Mass]</th>
<th>Name</th>
<th>Classification in accordance with Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>54827-17-7</td>
<td>259-364-6</td>
<td>&lt; 0.05 %</td>
<td>3,3',5,5'-Tetramethylbenzidine</td>
<td>Category 3, H301; Category 3, H311; Category 1, H330; Category 2, H341</td>
</tr>
<tr>
<td>7722-84-1</td>
<td>231-765-0</td>
<td>&lt; 0.013 %</td>
<td>Hydrogen peroxide</td>
<td>Category 4, H302; Category 1 H318</td>
</tr>
<tr>
<td>26172-55-4</td>
<td>247-500-7</td>
<td>&lt; 0.0001%</td>
<td>5-Chloro-2-methyl-4-isothiazolin-3-one</td>
<td>Category 2, H272; Category 1B H314; Category 1B H317; Category 1B, H334</td>
</tr>
<tr>
<td>2682-20-4</td>
<td>220-239-4</td>
<td>&lt; 0.0001%</td>
<td>2-Methyl-4-isothiazolin-3-one</td>
<td>Category 2, H272; Category 1B H314; Category 1B H317; Category 1B, H334</td>
</tr>
</tbody>
</table>

- 3,3',5,5'-Tetramethylbenzidine does not require a hazard warning label under Regulation (EC) No. 1272/2008, concentration below 0.05% (w:v).
- Hydrogen peroxide does not require a hazard warning label under Regulation (EC) No. 1272/2008, concentration below 0.013% (w:v).
- 5-Chloro-2-methyl-4-isothiazolin-3-one does not require a hazard warning label under Regulation (EC) No. 1272/2008, concentration below 0.0001% (w:v).
- 2-Methyl-4-isothiazolin-3-one does not require a hazard warning label under Regulation (EC) No. 1272/2008, concentration below 0.0001% (w:v).

4. First aid measures

- **General information:** Immediately remove items of clothing contaminated with product.
- **After inhalation:**
  Go into fresh air; if short of breath, call a doctor.
- **After skin contact:**
  Rinse with plenty of water. Contact a doctor if skin irritation persists.
- **After eye contact:**
  Rinse opened eyes with plenty of water. Consult an ophthalmologist.
- **After swallowing:**
  Rinse mouth out and drink water. Consult a doctor.

5. Fire-fighting procedures

- **Suitable extinguishing agent:**
  The product itself does not burn, adapt fire extinguishing measures to nearby fire.
- **Special hazards due to substance or mixture:**
  In the event of fire, toxic fumes, including nitric oxides, can be released.

6. Accidental release measures

- **Personal precautions:**
  Do not inhale fumes.
  Wear respirator mask, safety goggles, galoshes, rubber gloves.
- **Environmental precautions:**
  Do not empty into drains / surface water / groundwater.
7. Handling and storage

- **Methods and material for containment and cleaning up**
  **Cleaning measures:**
  Mechanically pick up.
  Make sure the room is well-ventilated and then clean.

7. Handling and storage

- **Handling**
  **Safe handling:**
  No special measures necessary if handled and stored correctly.

- **Protection against fire and explosion:**
  No special measures necessary.

- **Storage**
  **Requirements for storage rooms and containers:**
  Seal opened containers carefully and store upright to prevent any leakage.

- **Combined storage:**
  None known.

- **Further information about storage conditions:**
  No special measures necessary.

- **Recommended storage temperature:**
  Value +2°C - +8 °C

8. Exposure limitation and controls/personal protection

- **Parameters to be monitored:**

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>EC No.</th>
<th>Name</th>
<th>AGW according to TRGS 900</th>
</tr>
</thead>
<tbody>
<tr>
<td>54827-17-7</td>
<td>259-364-6</td>
<td>3,3',5,5'-Tetramethylbenzidine</td>
<td>Not listed</td>
</tr>
<tr>
<td>7722-84-1</td>
<td>231-765-0</td>
<td>Hydrogen peroxide</td>
<td>1.4 mg/m³</td>
</tr>
<tr>
<td>26172-55-4</td>
<td>247-500-7</td>
<td>5-Chloro-2-methyl-4-isothiazolin-3-one</td>
<td>0.05 mg/m³</td>
</tr>
<tr>
<td>2682-20-4</td>
<td>220-239-4</td>
<td>2-Methyl-4-isothiazolin-3-one</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

- Preventative medical examinations for the workplace should be made available.

- **Exposure limit values:**
  No data available.

- **Personal protective clothing:**
  Wear personal protective clothing.

- **Respiratory protection:**
  No special measures necessary.

- **Gloves:**
  Protective gloves (DIN EN 455); The protective gloves should, in all cases, be checked for their workplace-specific suitability (e.g. mechanical resistance, product compatibility, anti-static properties). Follow the instructions and information from the protective glove manufacturer concerning the use, storage, maintenance and replacement of gloves. If damaged or showing initial wear marks, the protective gloves should be replaced immediately. Arrange work processes in such a way that the gloves need not be worn continuously.
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<table>
<thead>
<tr>
<th>Suitable material</th>
<th>Nitrile</th>
<th>Liquid</th>
<th>Material thickness</th>
<th>0.4 mm</th>
<th>Latex</th>
<th>Material thickness</th>
<th>0.4 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetration time</td>
<td>&gt; 120 min.</td>
<td>&gt;120 min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Eye protection:**
  Safety goggles (DIN EN 166)

- **Body protection:**
  Standard laboratory work clothing

- **General protective and hygiene measures:**
  - Do not smoke, eat or drink when working.
  - Keep away from food and drink.
  - Wash hands before breaks and after work.
  - Avoid contact with eyes and skin.
  - Immediately remove soiled or soaked clothing.

9. **Physical and chemical properties**

**General information:**

- **Appearance:**
  - Form: Liquid
  - Colour: Colourless to slightly blue
- **Smell:** Characteristic
- **Odour threshold:** Not determined
- **pH value:** 4.9-5.1
- **State changes**
  - Melting point / melting range: Not determined
  - Boiling point / boiling range: 101°C
- **Flash point:** Not suitable
- **Flammability (solid, gaseous):** Not suitable
- **Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Self-ignition:** The product does not self-ignite.
- **Risk of explosion:** The product is not an explosion risk.
- **Explosion limits:**
  - Lower: Not determined
  - Upper: Not determined
- **Vapour pressure at 20°C:** Not determined
- **Density:** 1.013 g/ml
- **Relative density:** Not determined
- **Vapour density:** Not determined
- **Evaporation rate:** Not determined
- **Solubility in / miscibility with water:** Completely miscible
- **Distribution coefficient (n-octanol/water):** Not determined

10. **Stability and reactivity**

- **Conditions to avoid:**
  None if used correctly.

- **Substances to avoid:**
  None known.
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- **Hazardous decomposition products:**
  No hazardous decomposition products known.

11. **Toxicological information**

**Information on toxicological effects**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,3',5,5'-Tetramethylbenzidine</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>LD₅₀ (oral)</td>
<td>1232 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>LD₅₀ (dermal)</td>
<td>3000 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>5-Chloro-2-methyl-4-isothiazolin-3-one</td>
<td>LD₅₀ (oral)</td>
<td>3350 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>2-Methyl-4-isothiazolin-3-one</td>
<td>LD₅₀ (oral)</td>
<td>550 mg/kg</td>
<td>Rat</td>
</tr>
</tbody>
</table>

**Irritation**

- **Irritation to the skin**
  Assessment: Mildly irritating
- **Irritation to the eye**
  Assessment: Mildly irritating
- **Sensitisation**
  Assessment: Sensitisation possible
- **Irritation to the airways**
  Assessment: Mildly irritating
- **Practical experience**
  May cause sensitisation through contact with the skin.
- **Other information**
  Product-specific toxicological data is not known.

12. **Environmental information**

This information is only relevant to the preservatives 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-4-isothiazolin-3-one.

<table>
<thead>
<tr>
<th>Species</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trout</td>
<td>LC₅₀ (mg/l)</td>
<td>0.19</td>
</tr>
<tr>
<td>Perch</td>
<td>LC₅₀ (mg/l)</td>
<td>0.28</td>
</tr>
<tr>
<td>Seaweed (Skeletonema costatum)</td>
<td>EC₅₀ (mg/l)</td>
<td>0.003</td>
</tr>
<tr>
<td>Algae (Selenastrum capricornutum)</td>
<td>EC₅₀ (mg/l)</td>
<td>0.018</td>
</tr>
<tr>
<td>Invertebrates (Daphnia magna)</td>
<td>EC₅₀ (mg/l)</td>
<td>0.16</td>
</tr>
</tbody>
</table>

13. **Disposal considerations**

- **Product:** The allocation of a waste code number must be made in accordance with the European Waste Catalogue (AVV - Waste List Ordinance) in consultation with the regional disposer.
- **Packaging:** Disposal in accordance with official regulations.
14. Transport information

Not subject to transport regulations according to ADR, RID, IATA and IMDG.

15. Regulatory information

- Regulations regarding safety, health and environmental protection / specific legal provisions for the material or mixture
- National regulations:
- **Information about limitation of use:**
  - Note the limitations of use for young persons in accordance with Section 22 JArbSchG.
- **Hazardous Incidents Ordinance:**
- **Classification according to VbF:** Not applicable
- **Water hazard class:** Not hazardous to water
- **Chemical safety assessment:** No chemical safety assessment has been carried out.

16. Other information

**Further information**

- The information is based upon our present knowledge. It is intended to describe our products in terms of safety requirements, but does not represent any undertaking as regards product quality, nor does it constitute any contractual legal obligation.
- **Section issuing the data sheet:** Department of Occupational Safety and Environmental Protection
- **Contact:** Ms Hendlmeier

**Abbreviations and acronyms:**

- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- ICAO: International Civil Aviation Organization
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
- LC50: Lethal concentration, 50 per cent
- LD50: Lethal dose, 50 per cent
- LD50*: Lethal dose, 50 per cent (not relevant to classification)
- LC50*: Lethal concentration, 50 per cent (not relevant to classification)
- H272, category 2, can worsen fire; oxidising agent.
- H301, category 3, toxic if swallowed.
- H302, category 4, harmful if swallowed.
- H311, category 3, toxic in contact with skin
- H314, category 1B, causes severe burning of the skin and eye damage.
- H317, category 1B, may cause allergic skin reactions.
- H318, category 1, causes severe eye damage.
- H330, category 1, can be lethal if inhaled.
- H334, category 1B, may cause allergy, asthmatic symptoms or breathing difficulties on inhalation.
- H341, category 2, may cause genetic defects.